5.16.62 PERCENT SOLIDS OF LIME SLURRY (Kansas Test Method KT-62)

a. SCOPE

This method of test covers the procedure for determining the amount of solids, by percent, contained in lime slurry.

b. APPARATUS

b.1. Quart container, not to be made of glass.

b.2. Gardner weight per gallon (WPG) cup.

b.3. Thermometer capable of reading 20^{o} C to 101^{o} C.

c. SAFETY

c.1. Always wear eye protection during this procedure.

d. TEST PROCEDURE

d.1. Fill a quart container ¾ full with lime slurry. Sample can be taken from ports located at either end of the vessel.

d.2. Weigh a dry, empty Gardner WPG cup and cover to the nearest 0.01 g. Record this mass as A.

d.3. Shake the lime slurry sample well, and immediately fill the WPG cup.

d.4. Tap the WPG cup lightly on an immoveable object to allow for the escape of air bubbles.

d.5. Slowly turn the top of the WPG cup until it is completely seated. If the cover is pushed on quickly, lime slurry will squirt out through the hole in the center. Be sure to point the top of the WPG cup away from yourself as well as others while putting on the cap.

d.6. Hold the WPG cup by the top and bottom with thumb and forefinger. Being sure to cover the hole in the cap.

d.7. Rinse the WPG cup under running water to remove any lime from the outside of the cup.

d.8. Dry the outside of the cup thoroughly.

d.9. Weigh the dry, filled WPG cup to the nearest 0.01 g. Record this mass as B.

d.10. Promptly remove the cover and insert thermometer. Record the temperature as C.

e. CALCULATIONS

e.1. Slurry Density, lbs/gal, (E)

$E = (B - A) \times 0.1$

A= Mass of the WPG cup empty
B= Mass of the WPG cup full

e.2. Adjusted Slurry Density, lbs/gal, (G)

$G = E \times F$

F= Temperature Correction Factor (Refer to Table 2)

e.3. Using the adjusted slurry density value, determine the percent solids of the lime slurry from Table 1.

TABLE 1 Slurry Solids Chart - 24 °C

Density lbs./gal.	Slurry Solids		Density lbs./gal.	Slurry Solids		Density lbs./gal	Slurry Solids		Density lbs./gal	Slurry Solids
9.108	15.1%		9.402	20.1%		9.715	25.1%		10.050	30.1%
9.114	15.2%		9.406	20.2%		9.722	25.2%		10.057	30.2%
9.120	15.3%		9.414	20.3%		9.728	25.3%		10.064	30.3%
9.128	15.4%		9.420	20.4%		9.735	25.4%		10.071	30.4%
9.131	15.5%		9.426	20.5%		9.741	25.5%		10.078	30.5%
9.137	15.6%		9.433	20.6%		9.748	25.6%		10.085	30.6%
9.143	15.7%		9.439	20.7%		9.755	25.7%		10.092	30.7%
9.148	15.8%		9.445	20.8%		9.761	25.8%		10.099	30.8%
9.154	15.9%		9.451	20.9%		9.768	25.9%		10.106	30.9%
9.160	16.0%		9.457	21.0%		9.774	26.0%		10.113	31.0%
9.166	16.1%		9.463	21.1%		9.781	26.1%		10.120	31.1%
9.171	16.2%		9.469	21.2%		9.787	26.2%		10.127	31.2%
9.177	16.3%		9.476	21.3%		9.794	26.3%		10.134	31.3%
9.183	16.4%		9.482	21.4%		9.800	26.4%		10.141	31.4%
9.189	16.5%		9.488	21.5%		9.807	26.5%		10.148	31.5%
9.195	16.6%		9.494	21.6%		9.814	26.6%		10.155	31.6%
9.200	16.7%		9.500	21.7%		9.820	26.7%		10.163	31.7%
9.206	16.8%		9.506	21.8%		9.827	26.8%		10.170	31.8%
9.212	16.9%		9.513	21.9%		9.833	26.9%		10.177	31.9%
9.218	17.0%		9.519	22.0%		9.840	27.0%		10.184	32.0%
9.224	17.1%		9.525	22.1%		9.847	27.1%		10.191	32.1%
9.230	17.2%		9.531	22.2%		9.853	27.2%		10.198	32.2%
9.235	17.3%		9.538	22.3%		9.860	27.3%		10.205	32.3%
9.241	17.4%		9.544	22.4%		9.867	27.4%		10.212	32.4%
9.247	17.5%		9.550	22.5%		9.873	27.5%		10.220	32.5%
9.253	17.6%		9.556	22.6%		9.880	27.6%		10.227	32.6%
9.259	17.7%		9.563	22.7%		9.887	27.7%		10.234	32.7%
9.265	17.8%		9.569	22.8%		9.894	27.8%		10.241	32.8%
9.271	17.9%		9.575	22.9%		9.900	27.9%		10.248	32.9%
9.277	18.0%		9.581	23.0%		9.907	28.0%		10.255	33.0%
9.282	18.1%		9.588	23.1%		9.914	28.1%		10.263	33.1%
9.288	18.2%		9.594	23.2%		9.920	28.2%		10.270	33.2%
9.294	18.3%		9.600	23.3%		9.927	28.3%		10.277	33.3%
9.300	18.4%		9.607	23.4%		9.934	28.4%		10.284	33.4%
9.306	18.5%		9.613	23.5%		9.941	28.5%		10.292	33.5%
9.312	18.6%		9.619	23.6%		9.948	28.6%		10.299	33.6%
9.318	18.7%		9.626	23.7%		9.954	28.7%		10.306	33.7%
9.324	18.8%		9.632	23.8%		9.961	28.8%		10.314	33.8%
9.330	18.9%		9.638	23.9%		9.968	28.9%		10.321	33.9%
9.336	19.0%		9.645	24.0%		9.975	29.0%		10.328	34.0%
9.342	19.1%		9.651	24.1%		9.982	29.1%		10.335	34.1%
9.348	19.2%		9.658	24.2%		9.988	29.2%		10.343	34.2%
9.354	19.3%		9.664	24.3%		9.995	29.3%		10.350	34.3%
9.360	19.4%		9.670	24.4%		10.002	29.4%		10.358	34.4%
9.366	19.5%		9.677	24.5%		10.009	29.5%		10.365	34.5%
9.372	19.6%		9.683	24.6%		10.016	29.6%		10.372	34.6%
9.378	19.7%		9.690	24.7%		10.023	29.7%		10.380	34.7%
9.384	19.8%		9.696	24.8%		10.030	29.8%		10.387	34.8%
9.390	19.9%		9.703	24.9%		10.037	29.9%		10.394	34.9%
9.396	20.0%		9.709	25.0%		10.044	30.0%		10.402	35.0%

TABLE 1 (cont.) Slurry Solids Chart - 24 °C

Density lbs./gal.	Slurry Solids		Density lbs./gal.	Slurry Solids		Density lbs./gal	Slurry Solids		Density lbs./gal	Slurry Solids
10.409	35.1%		10.795	40.1%		11.210	45.1%		11.658	50.1%
10.417	35.2%		10.803	40.2%		11.218	45.2%		11.667	50.2%
10.424	35.3%		10.811	40.3%		11.227	45.3%		11.677	50.3%
10.432	35.4%		10.819	40.4%		11.236	45.4%		11.686	50.4%
10.439	35.5%		10.827	40.5%		11.244	45.5%		11.695	50.5%
10.447	35.6%		10.835	40.6%		11.253	45.6%		11.705	50.6%
10.454	35.7%		10.843	40.7%		11.262	45.7%		11.714	50.7%
10.462	35.8%		10.851	40.8%		11.270	45.8%		11.724	50.8%
10.469	35.9%		10.859	40.9%		11.279	45.9%		11.733	50.9%
10.477	36.0%		10.867	41.0%		11.288	46.0%		11.743	51.0%
10.484	36.1%		10.875	41.1%		11.297	46.1%		11.752	51.1%
10.492	36.2%		10.883	41.2%		11.305	46.2%		11.762	51.2%
10.499	36.3%		10.892	41.3%		11.314	46.3%		11.771	51.3%
10.507	36.4%		10.900	41.4%		11.323	46.4%		11.781	51.4%
10.514	36.5%		10.908	41.5%		11.332	46.5%		11.790	51.5%
10.522	36.6%		10.916	41.6%		11.341	46.6%		11.800	51.6%
10.530	36.7%		10.924	41.7%		11.349	46.7%		11.809	51.7%
10.537	36.8%		10.932	41.8%		11.358	46.8%		11.819	51.8%
10.545	36.9%		10.941	41.9%		11.367	46.9%		11.828	51.9%
10.552	37.0%		10.949	42.0%		11.376	47.0%		11.838	52.0%
10.560	37.1%		10.957	42.1%		11.385	47.1%		11.848	52.1%
10.568	37.2%		10.965	42.2%		11.394	47.2%		11.857	52.2%
10.575	37.3%		10.974	42.3%		11.403	47.3%		11.867	52.3%
10.583	37.4%		10.982	42.4%		11.412	47.4%		11.877	52.4%
10.591	37.5%		10.990	42.5%		11.421	47.5%		11.886	52.5%
10.599	37.6%		10.998	42.6%		11.430	47.6%		11.896	52.6%
10.606	37.7%		11.007	42.7%		11.439	47.7%		11.906	52.7%
10.614	37.8%		11.015	42.8%		11.447	47.8%		11.915	52.8%
10.622	37.9%		11.023	42.9%		11.456	47.9%		11.925	52.9%
10.629	38.0%		11.032	43.0%		11.465	48.0%		11.935	53.0%
10.637	38.1%		11.040	43.1%		11.475	48.1%		11.945	53.1%
10.645	38.2%		11.048	43.2%		11.484	48.2%		11.954	53.2%
10.653	38.3%		11.057	43.3%		11.493	48.3%		11.964	53.3%
10.661	38.4%		11.065	43.4%		11.502	48.4%		11.974	53.4%
10.668	38.5%		11.074	43.5%		11.511	48.5%		11.984	53.5%
10.676	38.6%		11.082	43.6%		11.520	48.6%		11.994	53.6%
10.684	38.7%		11.090	43.7%		11.529	48.7%		12.004	53.7%
10.692	38.8%		11.099	43.8%		11.538	48.8%		12.014	53.8%
10.700	38.9%		11.107	43.9%		11.547	48.9%		12.023	53.9%
10.707	39.0%		11.116	44.0%		11.556	49.0%		12.033	54.0%
10.715	39.1%		11.124	44.1%		11.566	49.1%		12.043	54.1%
10.723	39.2%		11.133	44.2%		11.575	49.2%		12.053	54.2%
10.731	39.3%		11.141	44.3%		11.584	49.3%		12.063	54.3%
10.739	39.4%		11.150	44.4%		11.593	49.4%		12.073	54.4%
10.747	39.5%		11.158	44.5%		11.602	49.5%		12.083	54.5%
10.755	39.6%		11.167	44.6%		11.612	49.6%		12.093	54.6%
10.763	39.7%		11.175	44.7%		11.621	49.7%		12.103	54.7%
10.771	39.8%		11.184	44.8%		11.630	49.8%		12.113	54.8%
10.779	39.9%		11.193	44.9%		11.639	49.9%		12.123	54.9%
10.787	40.0%		11.201	45.0%		11.649	50.0%		12.134	55.0%

TABLE 2
Correction Factor to Adjust Slurry Densities for Temperature

Temp (C)	Factor		Temp (C)	Factor
20	0.99927		61	1.01176
21	0.99944		62	1.01218
22	0.99962		63	1.01262
23	0.99981		64	1.01305
24	1.00000		65	1.01349
25	1.00020		66	1.01394
26	1.00041		67	1.01439
27	1.00063		68	1.01485
28	1.00085		69	1.01531
29	1.00109		70	1.01578
30	1.00132		71	1.01626
31	1.00157		72	1.01673
32	1.00182		73	1.01722
33	1.00208		74	1.01770
34	1.00234		75	1.01820
35	1.00261		76	1.01870
36	1.00289		77	1.01920
37	1.00318		78	1.01971
38	1.00347		79	1.02022
39	1.00376		80	1.02074
40	1.00407		81	1.02126
41	1.00438		82	1.02179
42	1.00469		83	1.02232
43	1.00501		84	1.02286
44	1.00534		85	1.02341
45	1.00567		86	1.02395
46	1.00601		87	1.02451
47	1.00635		88	1.02506
48	1.00670		89	1.02563
49	1.00706		90	1.02619
50	1.00742		91	1.02677
51	1.00779		92	1.02734
52	1.00816		93	1.02793
53	1.00854		94	1.02851
54	1.00892		95	1.02911
55	1.00931		96	1.02970
56	1.00970		97	1.03031
57	1.01010		98	1.03091
58	1.01051		99	1.03152
59	1.01092		100	1.03214
60	1.01134		101	1.03276

Slurry Worksheet

DATE	TIME	WPG CUP MASS FULL (B)	WPG CUP MASS EMPTY (A)	SLURRY MASS (FULL - EMPTY) (D)	SLURRY DENSITY (Slurry Wt. x 0.10) (E)	SAMPLE TEMP.°C (C)	TEMP. CORRECTION FACTOR (TABLE 2) (F)	ADJ. SLURRY DENSITY (SLURRY DENSITY x TEMP. CORR. FACTOR) (G)	PERCENT SOLIDS (TABLE 1)